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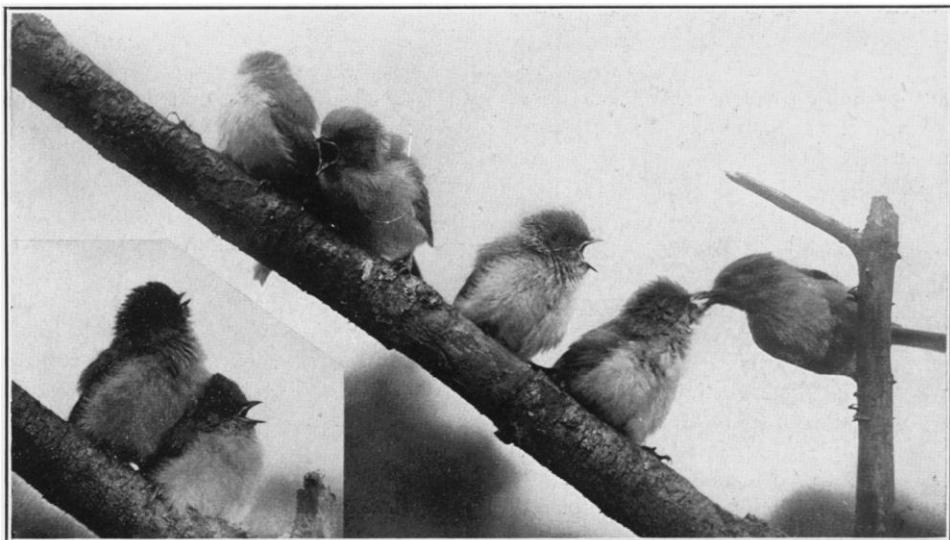
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PARENT FEEDING YOUNG BUSH-TITS

## The Future Problems and Aims of Ornithology<sup>a</sup>

A LETTER FROM MR. WILLIAM BREWSTER

Cambridge, Mass., Feb. 19, 1905.

DEAR MR. FISHER:

Your questions are so comprehensive and far reaching that I cannot answer all of them without giving more time and thought to the matter than are at present at my disposal. I will say briefly, however: (1) That of the more general problems in ornithology not related to any one country, that concerning the interrelation of bird with other animal life—and with plant life—seems to me to be best worth the attention of young ornithologists. By this I mean to say that what is called the "balance of nature" should be more closely studied. The subject is at present veiled in obscurity. We know for example that herons, kingfishers and loons eat fish; but just what fish do they eat, and upon what do these fish subsist? If on other animal life, what do these other animals eat? Do not the kingfishers and herons eat creatures other than fish? etc.

The study of bird migration is another general problem that is not likely to be exhausted for many years to come.

(2.) With reference to North American birds it is especially desirable to know more definitely where certain of them do or do not go to spend the winter. The summer distribution of many of them is also but imperfectly known. An especial

<sup>a</sup>A continuation of the series of letters begun in the last issue of *THE CONDOR*. Mr. Brewster has taken up several specific questions. The answers sufficiently indicate the nature of the questions.—F.D.

need—at least from the standpoint of ornithologists living in the eastern states—is that of more exact and definite published descriptions of the songs and other vocal notes of many of the birds which inhabit the Rocky Mountains, the Sierras, and even the coast region of California. This is a difficult matter to deal with effectively. It should be undertaken only by those who have a gift for rendering or describing bird sounds and who are also familiar with the songs of eastern birds, with which comparisons should be made whenever possible.

There are of course many special problems under this head which require further elucidation, such as the nesting of the Carolina parrot and the precise character of interrelationship of the eastern warblers, *Helminthophila pinus*, *H. chrysoptera*, *H. leucobronchialis* and *H. lawrencei*.

(3.) For the young ornithologist of limited means and sedentary habits, no more fitting and useful task can be suggested than the careful and prolonged study of the birds found in the immediate neighborhood of his home. He should begin by making a collection of the birds and their nests and eggs, limiting himself strictly to species taken within a definite and not too extensive area such as that of a township, or at most, a county. Local collections of this kind are of great and permanent value. When there is one for every county of every state in the Union the distribution of the birds of the United States can be plotted with reasonable accuracy. If the general region where our local collector lives has been already carefully worked, he should be content to take only a few specimens of each species; but if it has not been thus investigated, he will do well to collect his birds in series.

(4.) Although I sympathize strongly with the work of the Audubon Societies I do not think that the time has arrived when we can dispense with the killing of birds for scientific purposes. I also hold strongly to the conviction that few if any men can become thoroughly efficient and trustworthy ornithologists unless they have first had extensive field experience as collectors of birds and eggs. This I consider essential to success, no matter what department of ornithology the young student may finally decide to investigate. Of course he may derive much pleasure and profit from merely watching living birds, and he may also make field observations which, if published, will be generally accepted as reliable and of value provided he avoid the mistake—all too common among young men of the present day—of attempting to positively identify by sight alone birds which no one save an expert should venture to name without the aid of a gun. But should he try to deal with any really broad and difficult problems he will be likely sooner or later to find himself seriously handicapped unless he has had previous field experience which has included the killing and dissection of a considerable number and variety of birds.

To this I would add, however, that no young man is justified in thus taking bird life unless he is reasonably sure that his interest in ornithology is likely to be lasting, and that his ability to devote his life to its pursuit is also assured. If he wishes merely to divert himself by the study of birds, or to make their study simply an excuse for leading an out-of-door life, the opera glass, not the gun, is the implement best suited to his use.

Yours sincerely,

[Signed]

WILLIAM BREWSTER.